



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Takafumi Atarashi *et al.*

Appln. No.: 09/254,005

Filed: March 1, 1999

Group Art Unit: 1773

Examiner: Kevin R. Kruer

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TC 1700

#24

For: CONSOLIDATED MATERIAL OF COATED POWDERS AND PROCESS FOR
PRODUCING THE SAME

DECLARATION UNDER 37 C.F.R. §1.132

Assistant Commissioner of Patents
Washington, D.C. 20231

Sir:

I, Dr. Takafumi Atarashi, do declare and state that:

I graduated from Akita University, Faculty of Mining, Department of Mining Geology, with a degree in Industry, receiving a Master's Degree in March of 1986. I received a Doctor's Degree in March of 1996 from Tohoku University, Faculty of Engineering, Resources Engineering.

Since April of 1986, I have been employed by Nittetsu Mining Co., Ltd., where I am engaged in research and development relating to color magnetic fluids, the synthesis of fine ferrite particles, the synthesis of fine iron nitride particles, and the formation of layers on fine particles.

I am familiar with the prosecution history of the above-identified application including the Advisory Action dated June 12, 2002 and the final Office Action dated March 5, 2002 in the above-identified application. Therein, relative to the rejection over U.S. Patent 5,763,085 to Atarashi *et al.*, the Examiner considered that the application of toner described therein via a magnetic brush would result in a uniform application of toner and therefore meet the terms of the rejected claims requiring a consolidated

material of coated powders "wherein the coated powders constituting the consolidated material are arranged at the same distance from one another in a given direction and are united into the consolidated material while maintaining the same distance in a given direction".

The following experiment was conducted by me or under my direct supervision. The experimentation described herein demonstrates that magnetic toner particles such as those mentioned by Atarashi et al applied to paper via a magnetic brush and fixed thereon does not result in a uniform application of toner, and more importantly, does not provide a consolidated material of coated powders "wherein the coated powders constituting the consolidated material are arranged at the same distance from one another in a given direction and are united into the consolidated material while maintaining the same distance in a given direction" as required by my invention.

EXPERIMENTATION

A MICROLINE 803PSIIV+F type magnetic printer (manufactured by OKI ELECTRONICS Co., Ltd.) was used to copy a magnetic toner onto paper using a magnetic brush. The printer had a resolution of 600 dpi (dot per inch), and the resolution thereof was high.

Next, a test for evaluating uniformity of dispersion of magnetic toner formed on paper using the above printer was carried out as follows.

A black picture whose color was uniform in whole area was prepared and printed by the printer. That is, magnetic toner was distributed uniformly in the whole area by printing a uniform black toner.

Then, a part of the black paper was cut, and a magnified view thereof was photographed using a scanning electron microscope. The part of the black paper set as the copying direction was upside down relative to the electron microscope pictures attached hereto.

1. Low-powered electron microscopic picture (fifty-fold magnification)

As seen by the naked eye, the whole area appeared black. However, as shown in Fig. 1 attached herewith, the parts with light gray are regions where the particles are firmly fixed so that the surface of the toner particles became smooth. Moreover, the dark parts are regions where the number of toner particles are insufficient so as to expose the toner particles. Therefore, it is apparent from Fig. 1 that a plain surface with perfect uniformity was not formed.

2. High-powered electron microscopic picture (five hundred-fold magnification)

An electron micrograph of yet increased magnification was observed in order to investigate in detail.

Fig. 2 attached herewith shows a highly magnified picture of the light gray parts of Fig. 1 (the parts where the surface of the toner particles became smooth because the particles were firmly fixed). As described above, the toner particles were firmly fixed. However, the surface was waved and there were some pores in the light gray parts. Thus, a consolidated material of uniformly arranged toner particles was not obtained. Moreover, the fixed toner particles did not constitute a three-dimensionally arranged consolidated material of coated powders arranged at the same distance from one another in a given direction.

Fig. 3 attached herewith is a highly magnified picture of the dark parts of Fig. 1 (the parts where the toner particles were present in insufficient number and therefore exposed). The density of toner particles differed with location and the toner particles were not arranged uniformly. Especially, the particles were not three-dimensionally arranged at the same direction from one another in a given direction.

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As shown above, when a magnetic toner is firmly fixed (consolidated on paper) using a magnetic brush, the consolidated material of a magnetic toner appears uniform as seen by the naked eye. However, when closely examined with a scanning electron microscope, it is clear that such consolidated material (magnetic toner arranged with a magnetic brush) is not uniformly arranged as asserted by the Examiner and the toner particles are not three-dimensionally arranged at the same distance from one another in a given direction.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

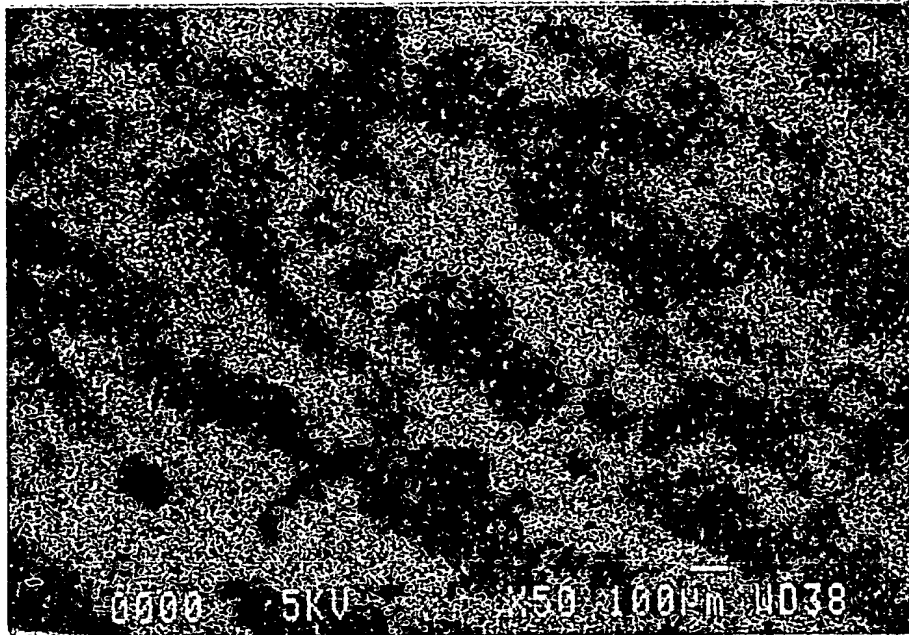
Date : Sep. 30, 2002

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Takafumi Atarashi

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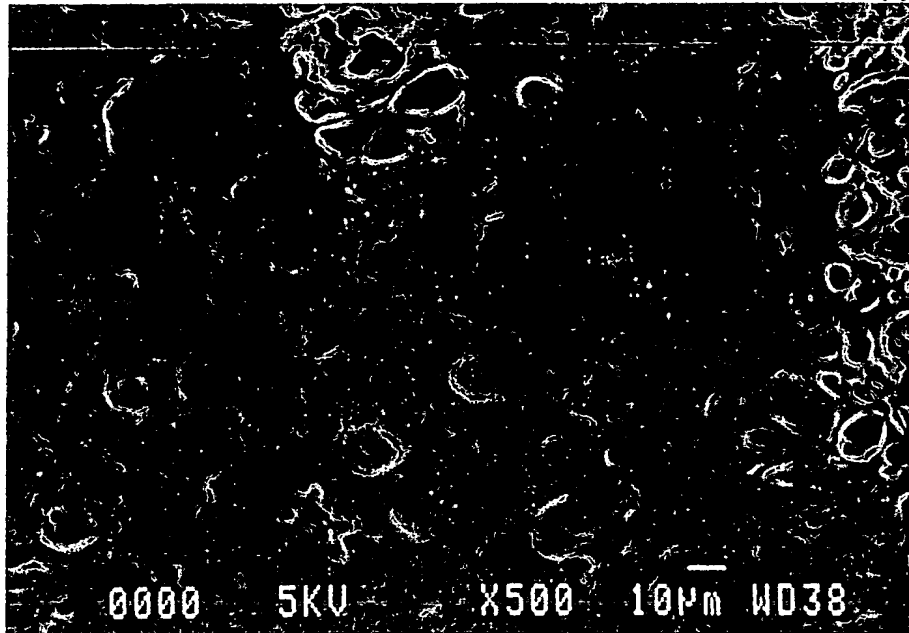


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Fig.1

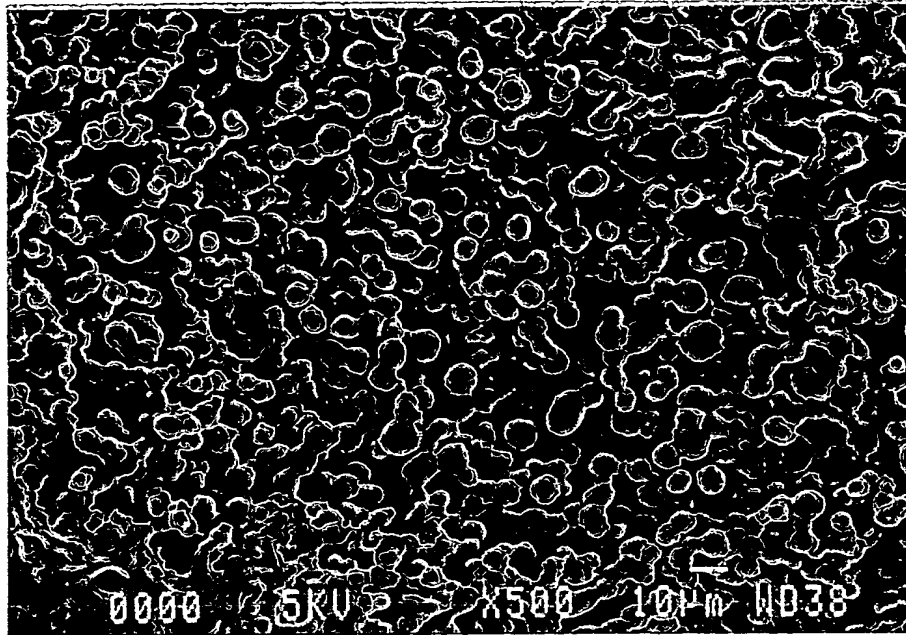


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Fig.2



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Fig.3